SPIRIT ENERGY

RELINQUISHMENT REPORT OF LICENSE PL 1031

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1 KEY LICENSE HISTORY

PL 1031 is located 20 km west of the Wisting and Hanssen discoveries, in the south-western Barents Sea. The license is structurally situated on the Bjarmeland Platform straddling the northern part of the Loppa High and consists of blocks 7323/7 and 7323/8 (see Fig. 1.1). Parts of the Svalis Dome and Maud Basin lies within the license area, and one prospects and five leads were identified in the APA 2018 application (see Fig. 1.2). Note that the southeastern part of the acreage applied for was not awarded to PL1031, leaving the Nightcrawler prospect and three leads within the license.

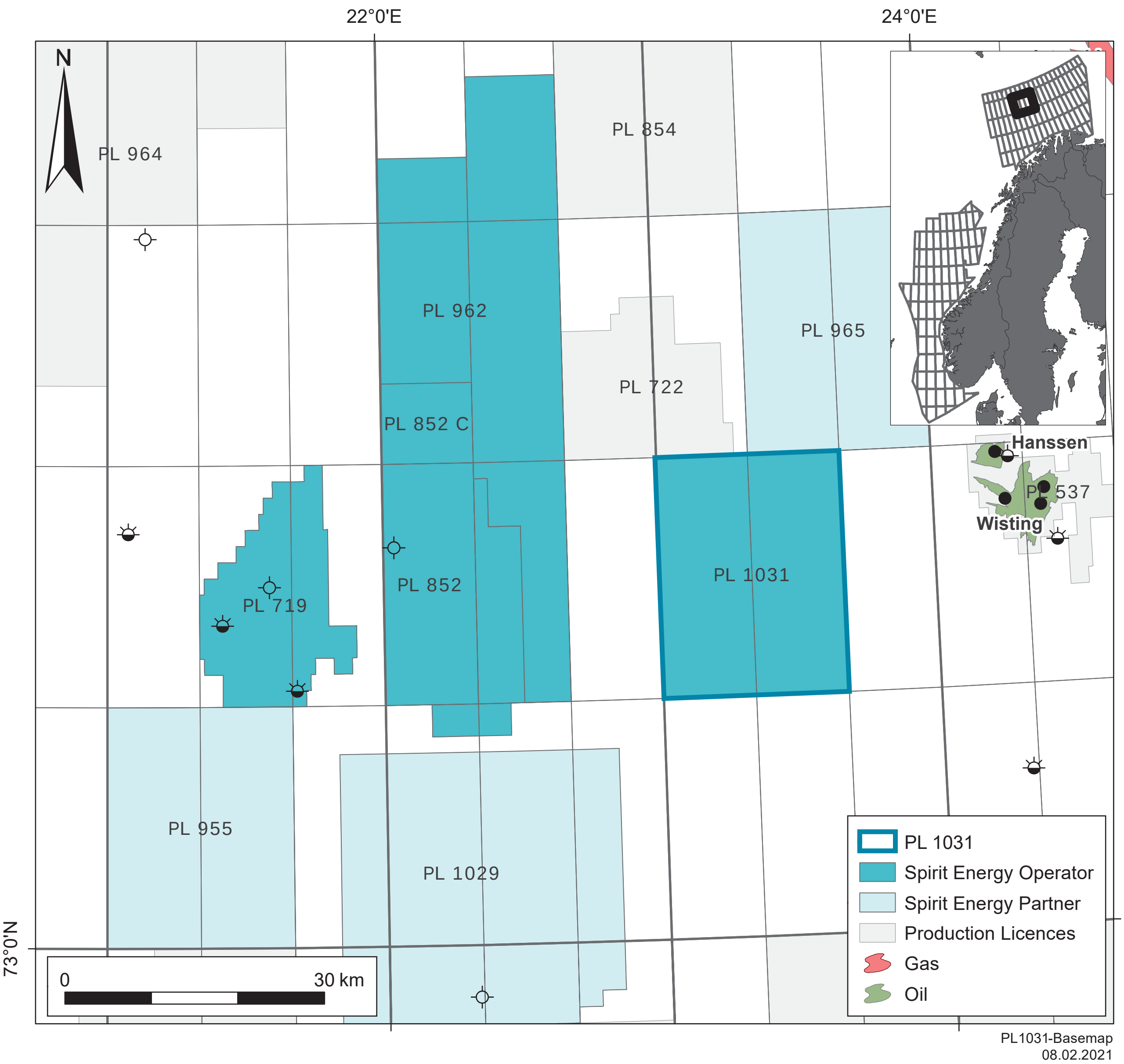


Fig. 1.1 License overview map

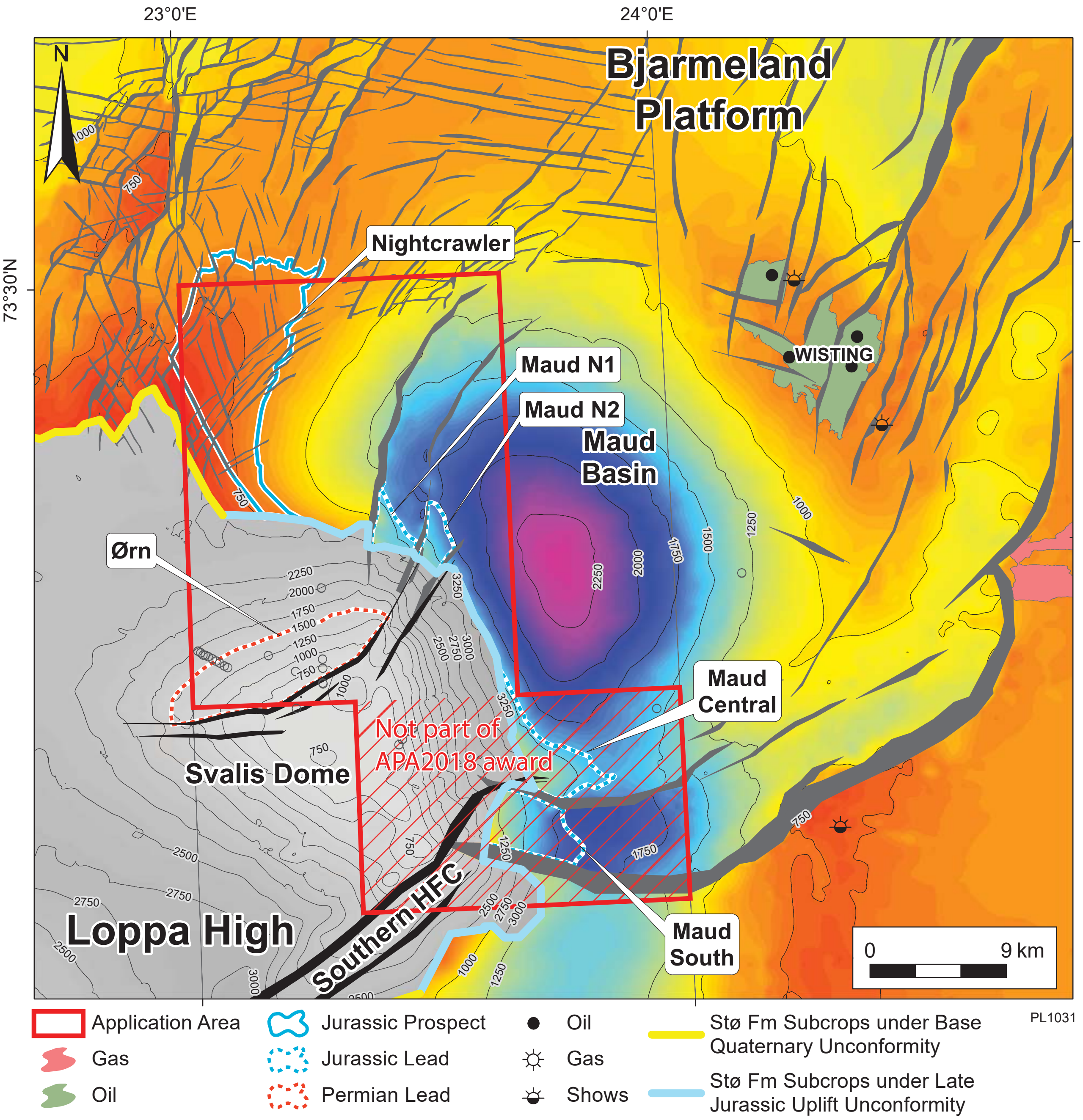


Fig. 1.2 Prospects and Leads Summary Map, APA 2017

Summary of Award and Participants

The PL 1031 license was awarded 01.03.2019 as part of APA 2018 to the following licensees:

- Spirit Energy Norway AS - 40% (Op)
- Petoro AS - 20%
- Aker BP ASA - 20%
- Equinor Energy AS - 20%

There have been no changes in the license group since it was established.

Voting rules are 2 parties and minimum of 50%.

The commitments for the initial period were to acquire electromagnetic (EM) data and to carry out G&G work. The acquisition of CSEM survey BS1901 by EMGS fulfilled the former part of the commitment, and prospect evaluation the latter part of the commitment. In addition a cap-rock study by Schlumberger was initiated and delivered to the license.

Initial Work Obligations

At the date of award, phase 1 of the work program leading to a Drill or Drop (DoD) decision was valid to 01.03.2021.The work programme and duration of the license period is summarized in Table 1.1

Table 1.1 Work programme and Duration

Period	Phase (>0)	Duration [year] (>0.0)	Work program	Decision at milestone
Initial period:	1	2.0	G&G studies, Reprocess 3D seismic	Drill or Drop
	2	2.0	Drill exploration well	Concretise (BoK) or Drop
	3	2.0	Conceptual studies	Continuation (BoV) or Drop
	4	1.0	Prepare development plan	Submit PDO or Drop
	Sum	7	Extension period [years] (>0.0):	20.0

License Meetings

A total of 4 license meeting has been held during the lifespan of PL1031, listed below.

<u>EC/MC meetings:</u>

- EC/MC meeting No 1. – 22.03.2019
- EC/MC meeting No 2. – 14.11.2019
- EC/MC meeting No 3. – 05.11.2020

<u>EC meetings/work meetings:</u>

- EC CSEM work meeting - 18.03.2019

Reason for Relinquishment

The Nightcrawler prospect have been matured utilising the best available seismic 3D data in the area combined with CSEM survey BS1901 acquired by the license. Nightcrawler, the main prospect in license 1031, has a high risk profile with limited volume potential. [redacted] The license group has not been able to mature Nightcrawler or any other opportunities in the license to a drillable prospect.

2 DATABASE

2.1 Seismic Database

Seismic mapping over the license area was carried out using the TGS HOOP seismic survey consisting of full fold PSTM data and 5 offset cubes, see Fig. 2.1 and Table 2.1. The sub-set of TGS HOOP being part of the license database is limited by the coordinates listed in Table 2.2. In addition, reprocessed 2D lines of survey MCG1401SPIR19 (not part of license database) were used and additional 3D surveys in Spirit Energy's database for well-ties outside of the main survey. There are no wells situated within the main TGS Hoop survey, all geological information was tied to Nightcrawler trough other seismic surveys available to Spirit Energy's in-house database. As part of the work program for PL1031, the BS1901 multi-client CSEM survey acquired by EMGS was utilized in the prospect de-risking, also shown in Fig. 2.1.

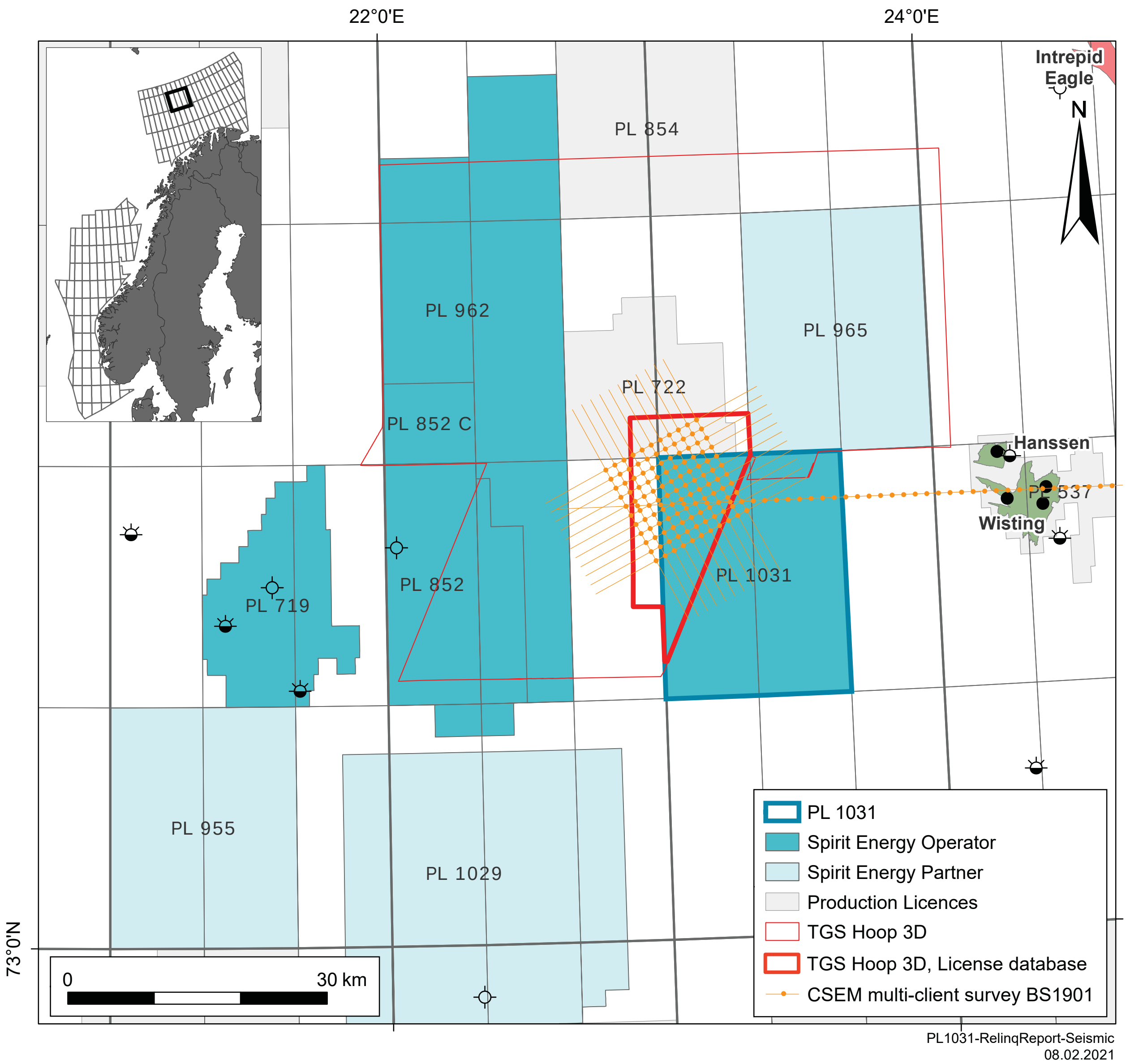


Fig. 2.1 Seismic database in PL1031 *Map showing seismic data coverage, TGS Hoop survey shown as red outline*

Table 2.1 3D survey

Survey	Owner	2D/3D	Area
Hoop 3D	TGS	3D	Part of survey (257 km^2)

Table 2.2 XY-coordinate defining 3D seismic database

UTM-X	UTM-Y
573985	8157962
573729	8162765
559791	8162249
560165	8145031
560176	8140317
563600	8140319
563867	8133972
564190	8133968

2.2 Well Database

The well database includes all released well data from the NPD. Key wells for the evaluation of PL1031 are the Wisting and Hanssen wells east of the license area in addition to wells situated in the Fingerdjupet Sub-basin to the west, see Fig. 2.2. Wells in the common database are listed in Table 2.3.

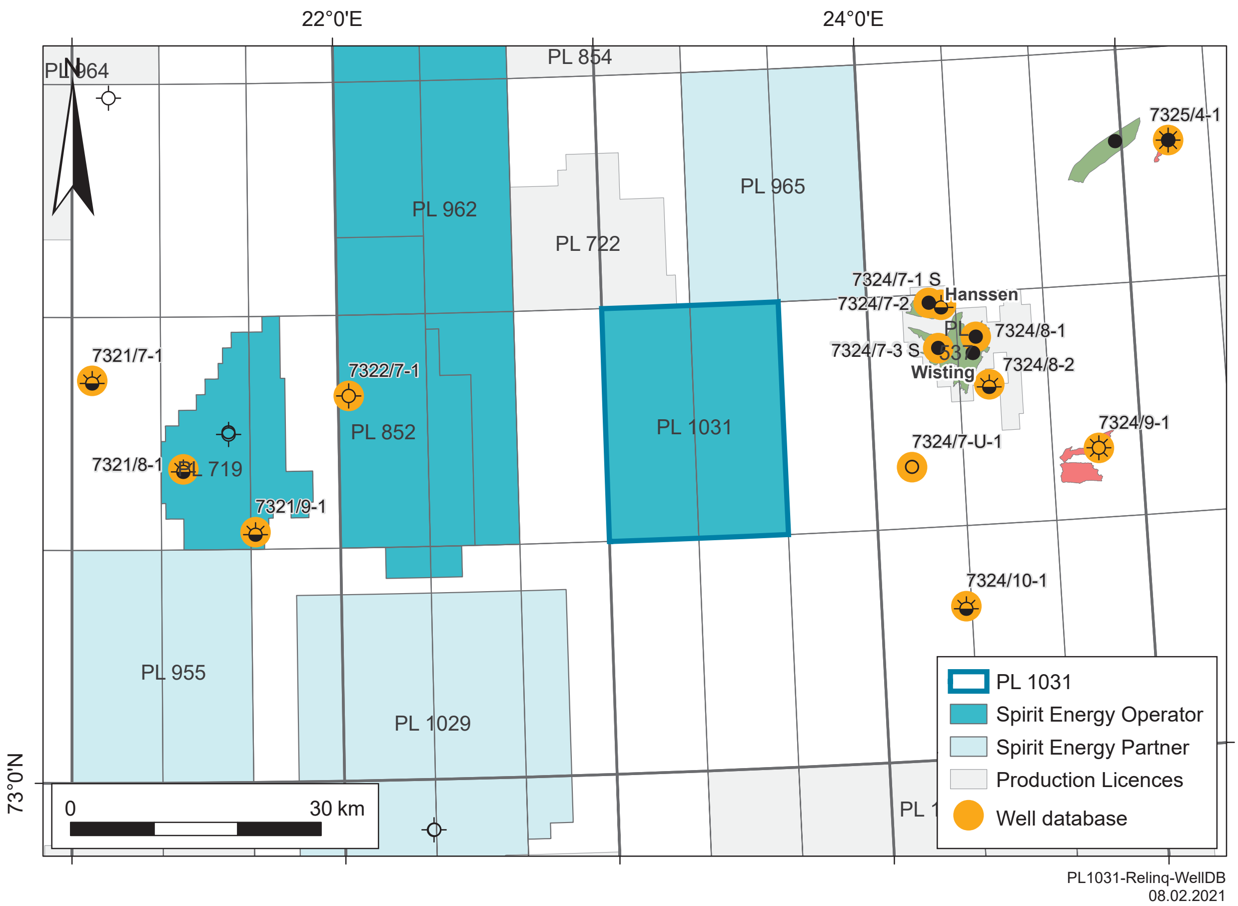


Fig. 2.2 Well database in PL1031

Table 2.3 Well database *Listing of wells in license database.*

Name	Operator	Completed	Location	Access needed
7321/7-1	Mobil Exploration	1988	Fingerdjupet Sub-basin	Raw only
7321/8-1	Norsk Hydro	1987	Fingerdjupet Sub-basin	Raw only
7321/9-1	Norsk Hydro	1988	Fingerdjupet Sub-basin	Raw only
7322/7-1	Spirit Energy	2018	Fingerdjupet Sub-basin (Scarecrow prospect)	Full/Trade
7324/7-1 S	OMV	2013	Hoop Fault Complex (Wisting Alt. Prospect)	Raw only
7324/7-2	OMV	2014	Hoop Fault Complex (Hanssen Discovery)	Raw only
7324/7-3 S	OMV	2016	Hoop Fault Complex (Wisting Appraisal)	Raw only
7324/8-1	OMV	2013	Hoop Fault Complex (Wisting Discovery)	Raw only
7324/8-2	OMV	2015	Hoop Fault Complex (Bjaaland Prospect)	Raw only
7324/9-1	Statoil	2014	Mercurius High (Mercury Discovery)	Raw only
7324/10-1	Den norske stats oljeselskap	1989	Maud Basin (Alpha Prospect)	Raw only
7325/4-1	Statoil	2017	Hoop Fault Complex (Gemini North)	Full/Trade
7324/7-U-1	IKU	1987	Maud Basin	Full/Trade

3 REVIEW OF GEOLOGICAL FRAMEWORK

Studies and evaluations

A seismic re-evaluation of the license area, combined with a controlled source electromagnetic (CSEM) forward modelling and inversion study has been performed. In addition was a top seal study done by Schlumberger initiated to de-risk the Nightcrawler prospect. The results of these studies were incorporated into the maturation and final evaluation of the prospectivity within PL 1031. The seismic evaluation and special studies initiated and delivered to the license are described below.

Seismic evaluation

The original APA 2018 interpretation was mainly carried out using the TGS Hoop 3D in combination with CGG17002 3D survey and MCG1401 high resolution 2D survey. Additional 2D surveys were used to give spatial coverage over the acreage applied for. In the seismic re-evaluation, the Hoop 3D survey combined with several 2D surveys where used. Comparison of Top Stø Fm. in APA 2018 (depth) against the most recent map (time), show some detailed differences in the structural picture, see Fig. 3.1. The latest structural interpretation has left the faults to be more disconnected, leaving Top Stø Fm. to have a more open fault system with ramps. The main fault limiting the Nightcrawler towards south-west is mapped to die out going southwards, meaning the P10 outline as shown in the APA map to be impossible. Further discussion of the re-mapping is found in the following 4 Prospect Update section.

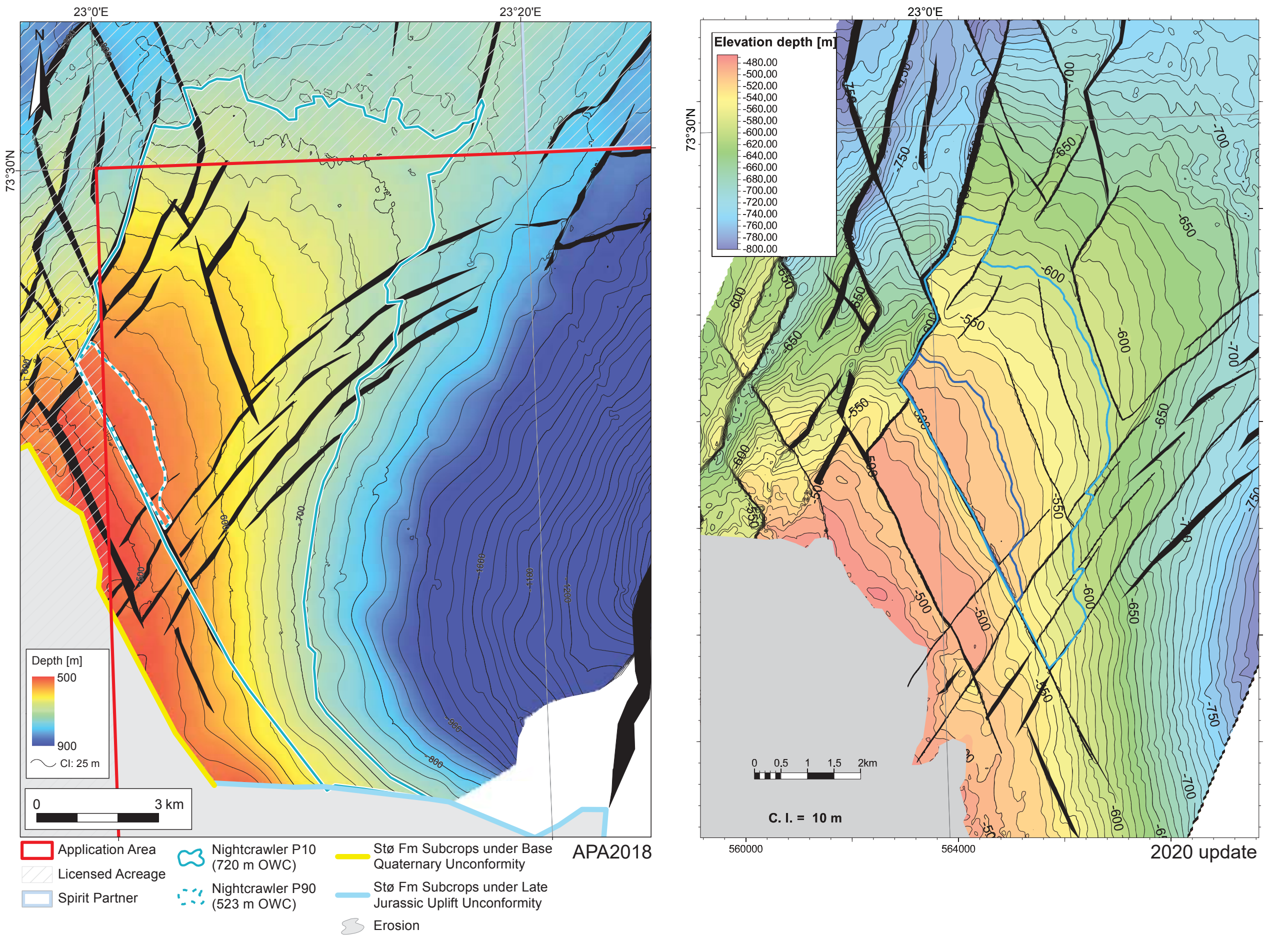


Fig. 3.1 Top Stø Fm. APA 2018 vs. October 2020 maps *Re-mapping of Top Stø Fm.; APA 2018 depth map (left) and most recent time map (right)*

CSEM sensitivity and forward modelling (EMGS)

The multi-client CSEM survey BS1901 was acquired over the Nightcrawler prospect with a tie-line to the Wisting discovery to the east, see Fig. 2.1. BS1901 is a world class EM dataset, with dense spatial sampling and a broad frequency spectrum. [redacted] Observations and discussion on implications are found in the following 4 Prospect Update section.

Cap rock study (Schlumberger)

A cap rock study called a 'Geomechanical assessment of hydrocarbon height potential in Barents Sea prospects' by Schlumberger was carried out to address the capacity of the thin overburden above the Nightcrawler prospect to effectively hold hydrocarbon columns. The study was a joint study by three Spirit Energy operated licenses, PL852, PL962 and PL1031 to quantify the hydrocarbon height potential. A geomechanical model was created and populated with mechanical properties, whereupon formation pressure and stress field estimations were made for the model and hence the fracture pressure in the cap rock. The buoyancy effect from presence of hydrocarbons is calculated (both oil and gas), and the resulting formation pressure where it exceeds the estimated fracture pressure in the cap rock, gives the maximum column height that can be trapped, see Fig. 3.2. In addition is the effect of glaciation cycles simulated, in which grounded ice was present and the vertical loading could induce overpressure in sealed reservoir formations, and the impact it gives after ice retraction and the formation has experienced an inelastic recovery after de-loading.

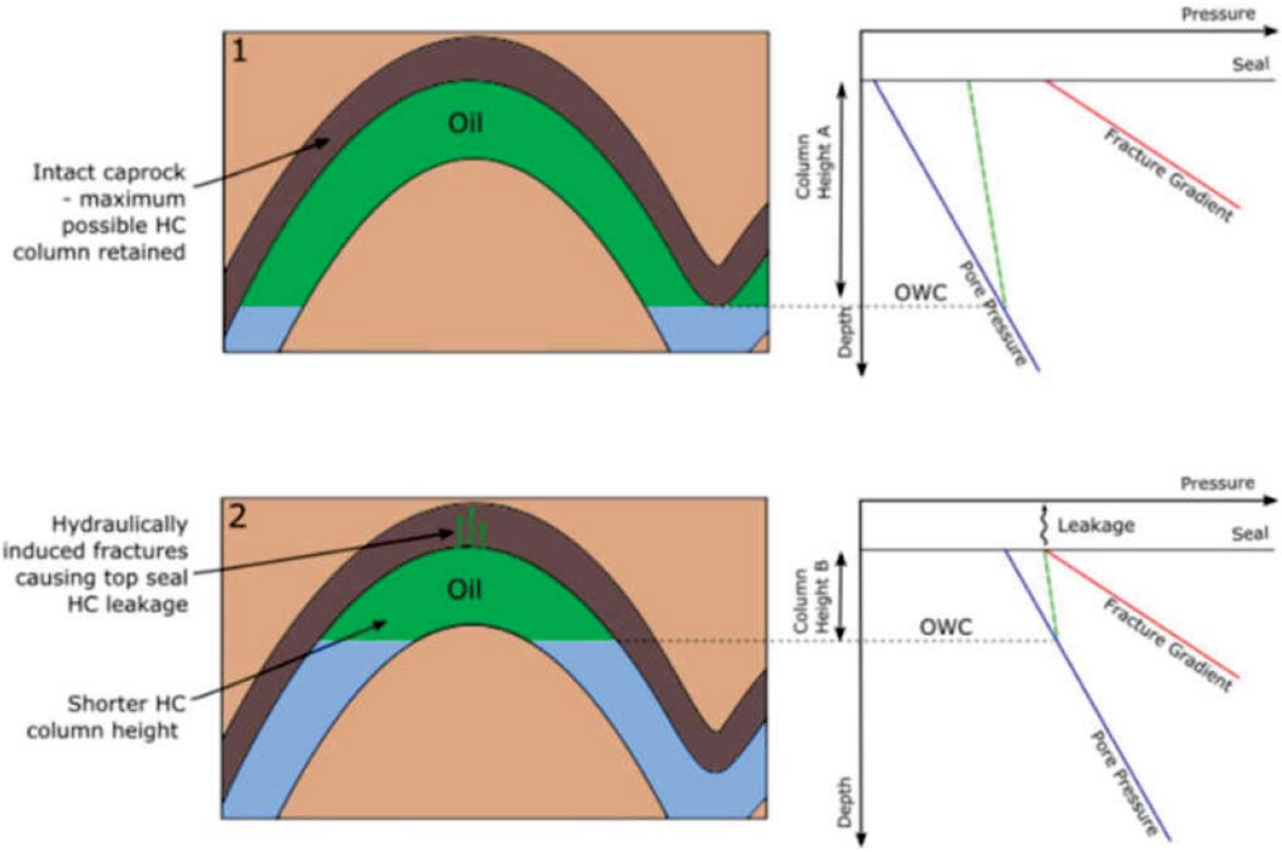


Fig. 3.2 Hydrocarbon column height fracturing the cap rock *Illustration of geometrically and mechanically controlled hydrocarbon height potential (From Gaarenstrom et al. 1993)*

4 PROSPECT UPDATE

The Nightcrawler prospect was the main driver when applying for the PL1031 area in APA 2018. Focus in the license evaluation has been to better understand and to de-risk Nightcrawler, but at the same time evaluate additional and other prospectivity in the license. The main target for the evaluation has been the drill-or-drop decision scheduled for March 2021.

Additional prospectivity has been considered without being able to prove up prospects with materiality. Re-mapping of the Nightcrawler prospect using the TGS HOOP 3D dataset gave some differences to the fault pattern observed and more detail was given to fault juxtapositions across the main faults defining the prospect. In combination with the results from CSEM modelling and observations, a better prospect evaluation was achieved and made the basis for the DoD decision in the license.

Nightcrawler prospect

Re-interpretation of Nightcrawler revealed some changes to the fault patterns as defined in the 2018 APA evaluation. Differences were subtle, but substantial in how the trapping mechanism of the prospect works and how the prospect is defined. Classic fault interpretation was used as basis, but heavily supported by the Ant-track workflow results defining mappable faults and their terminations and connections. The main fault is well defined in the new evaluation, but is seen to have a decrease in displacement going south-east and eventually terminate against a south-west - north-east trending fault, see Fig. 4.1. As a result, the P10 outline as defined in the APA2018 application (Fig. 3.1 left figure) is not supported and will reduce the maximum potential column height of Nightcrawler. To the south the available column height for Nightcrawler is defined by a spill point where two faults dipping in the opposite direction connect and where the displacement of the reservoir interval nears zero, Fig. 4.2.

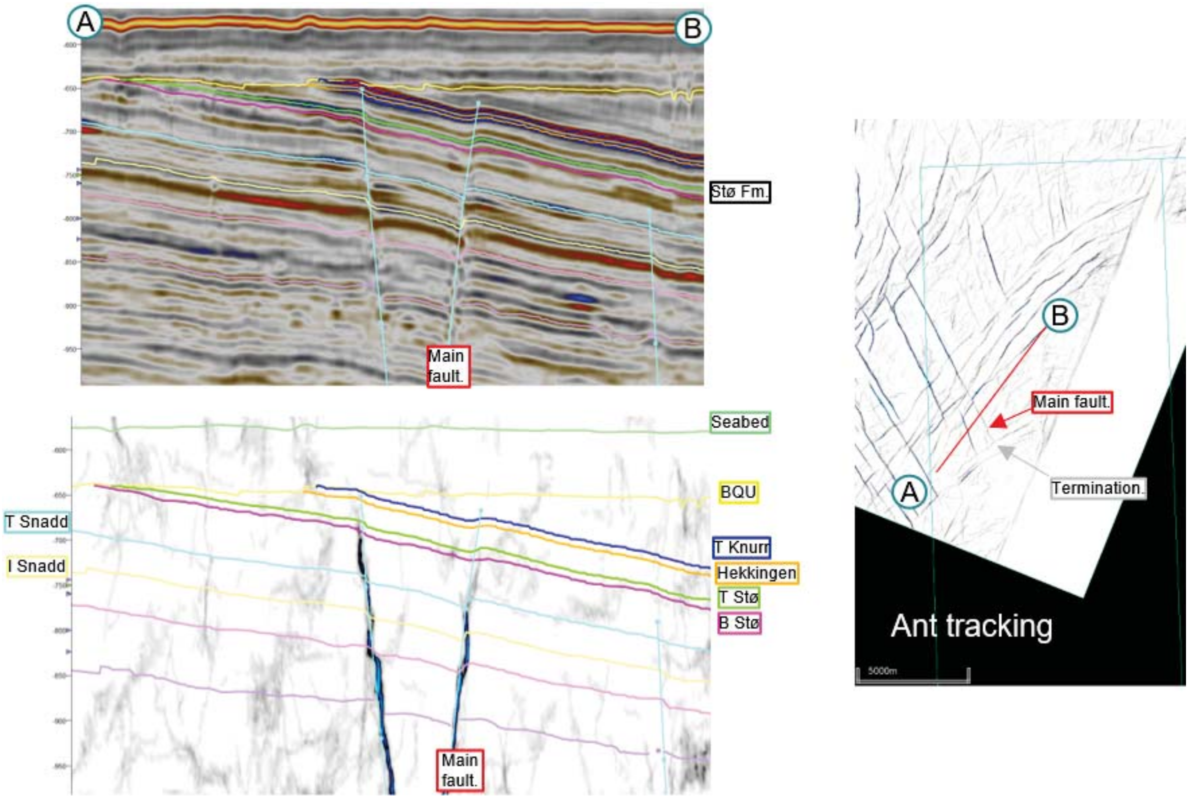


Fig. 4.1 Main fault termination *The main fault defining Nightcrawler towards the south-west decreases in displacement and eventually terminates in the south-east.*

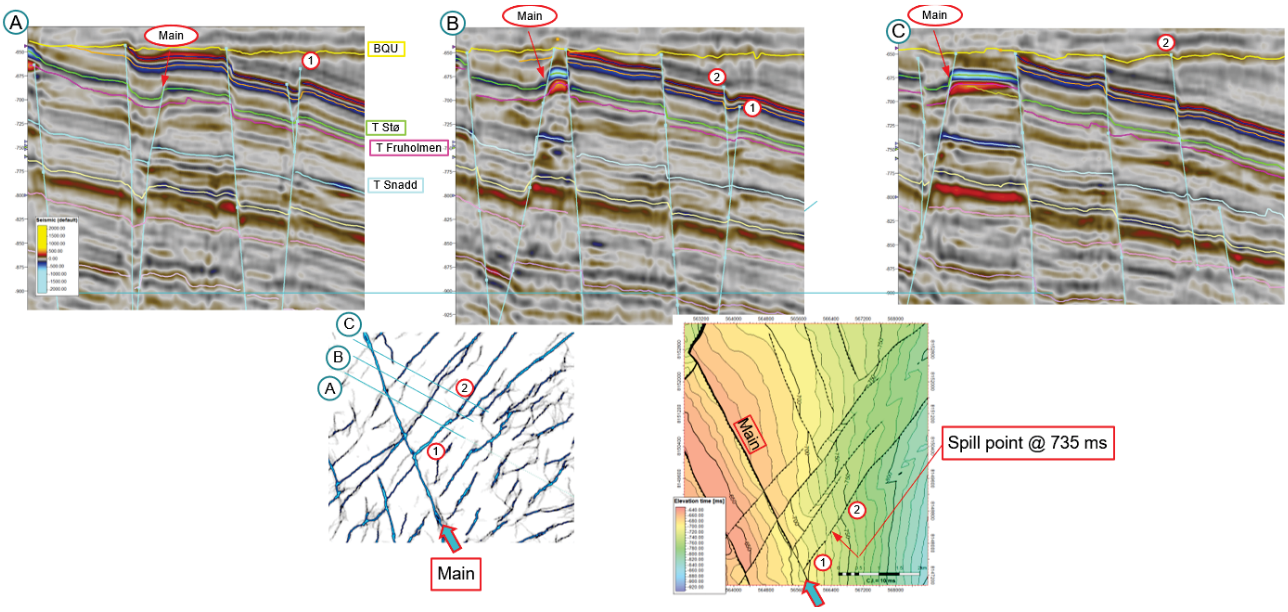


Fig. 4.2 Nightcrawler spill point *Two faults with opposite dip, 1 & 2, connects resulting in no displacement of the reservoir interval and hence further filling of the trap will spill to the south and east.*

The reservoir interval of Nightcrawler consist of Stø Fm and the upper part of the Fruholmen Fm, the Reke Mbr. The main fault shows different juxtapositions of the reservoir interval along its length, as seen in Fig. 4.3. An amplitude anomaly/flat event can be seen that coincides with reservoir juxtaposition level in the same figure. The highest amplitude anomaly show conformance to structure, Fig. 4.4. The depth map shows the fault dependent spill to be at 515 m MSL TVD while the structural spill in the south-east is at 590 m MSL TVD, Fig. 4.5. From the figure it can be seen that hydrocarbons spilling westward into the next fault compartment will most likely spill to the south over two fault compartments and eventually out of the structure as it can be shown that Stø/Stø or Stø/Reke juxtapositions happens along these faults.

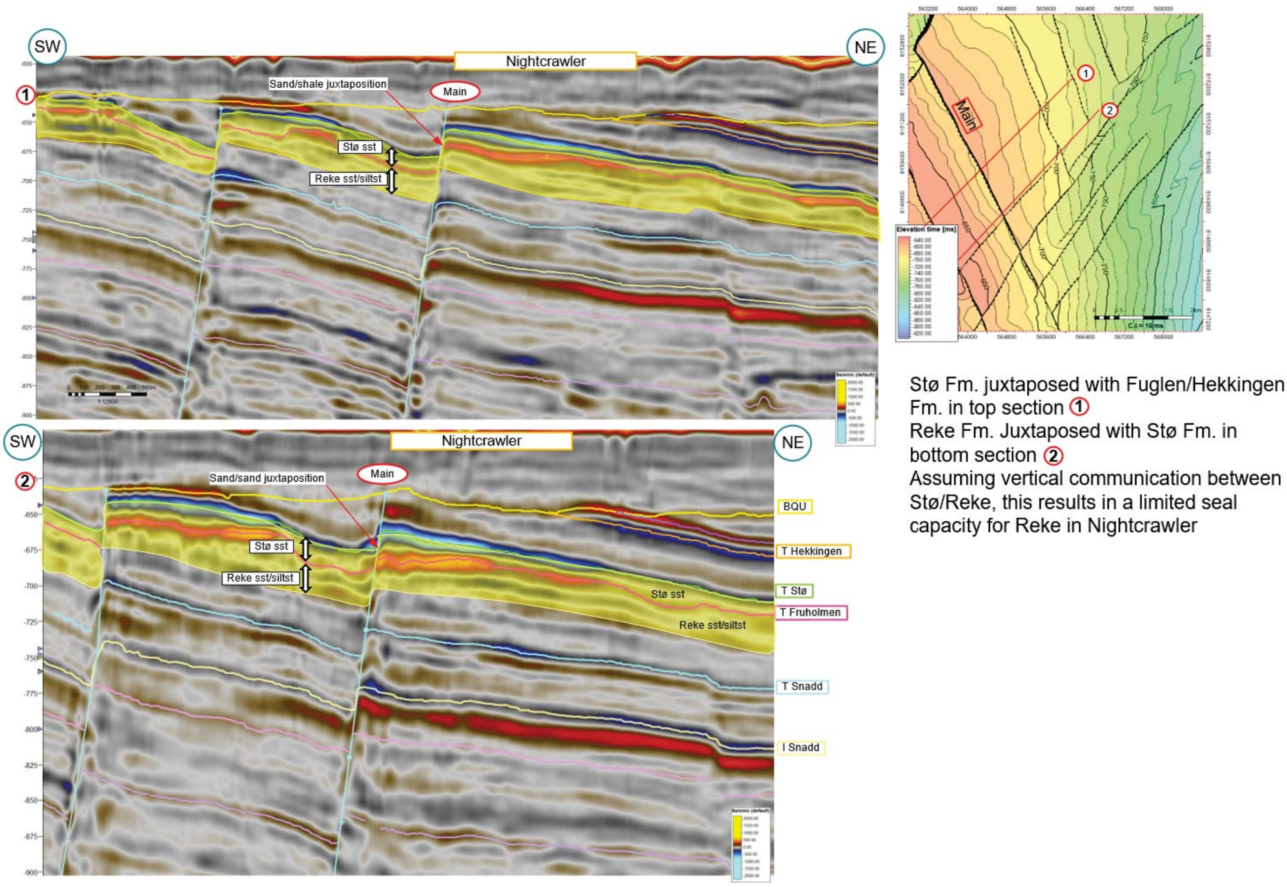


Fig. 4.3 Reservoir juxtaposition along the Main fault *Stø Fm. is juxtaposed against Fuglen/Hekkingen shales along the main fault, while Reke Mbr. is only partly juxtaposed against shales. Section 2 shows a 'weak point' where Reke is seen to be sitting against Stø Fm. over the fault.*

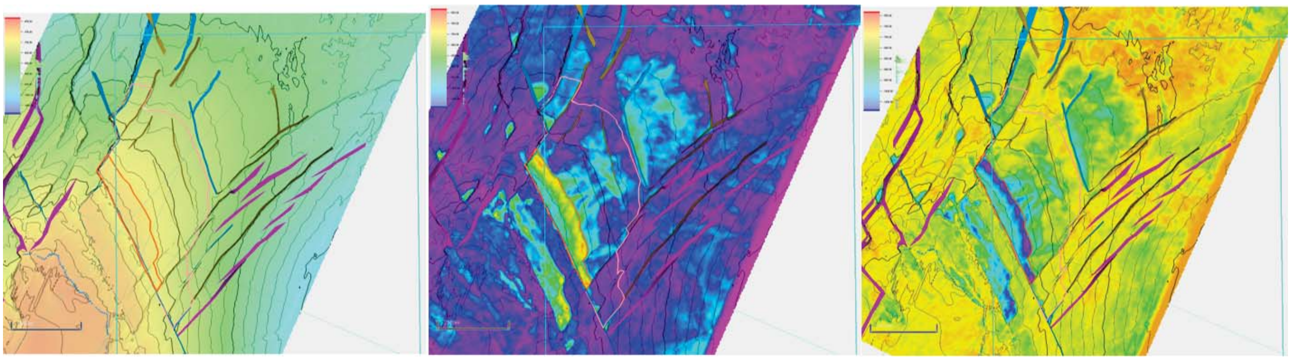


Fig. 4.4 Time and anomaly maps *Structural time map (left), RMS (middle) and minimum amplitude (right) maps over the Nightcrawler prospect*

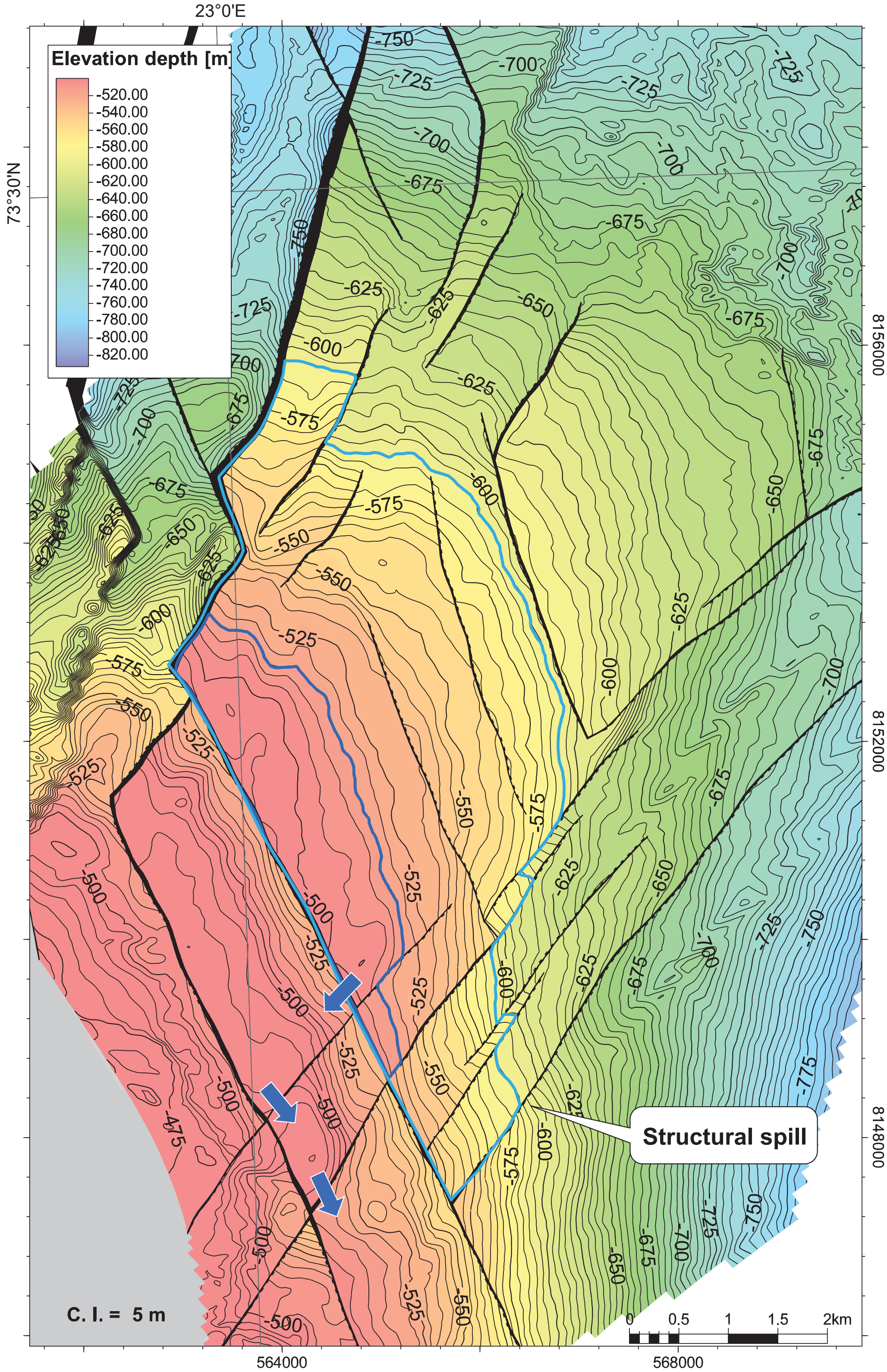


Fig. 4.5 Top Stø Fm. depth map *Nightcrawler depth map with possible spill over faults (blue arrows), structural spill in the south-east and polygons defining the 3-way dip closure (fault dependent, Stø against Fuglen) and by the structural spill.*

Based on the above, the trap consist of a 3-way dip closure where Stø/Reke is sealing against Fuglen shale. Any filling further down-dip is dependent on the Main fault sealing capacity where Stø and Reke is juxtaposed against Stø (and Reke). The faults limiting Nightcrawler to the north have throws that firmly juxtaposes the reservoir against Fuglen/Hekkingen shales.

Nightcrawler consist of the stacked Stø Fm. and Reke Mbr. reservoir intervals that are observed to be in communication in wells in the Wisting area. Top and base seals are Fuglen Fm. and Akkar Mbr. shales, see Fig. 4.6. Different input parameters are used for Stø and Reke respectively, but a common HC-water contact is assumed for the prospect. Normal distributed gross rock volume versus depth is used as input into a GeoX stochastic volumetric model; petrophysical parameters used are shown in Table 4.1 and fluid parameters in Table 4.2. A complex trap configuration is used to describe the combination of 3-way dip closure with high confidence of sealing hydrocarbons and further down-dip filling which is dependent on the Main Fault sealing, i.e. has a lower confidence in sealing capacity. The HCW contact distribution using a complex trap configuration is shown in Fig. 4.7, depth versus gross rock volume with contact levels is shown in Fig. 4.8. All examples shown for Stø Fm., but method is applicable to the Reke Mbr. as well. The two reservoir intervals are aggregated in a prospect analysis with respective input parameters but correlated (Max positive) gas-oil and HC-water contact levels. Both an oil and gas case is calculated as well as only oil which is the most optimistic case, only gas in the structure is regarded as a failure case or anti-model.

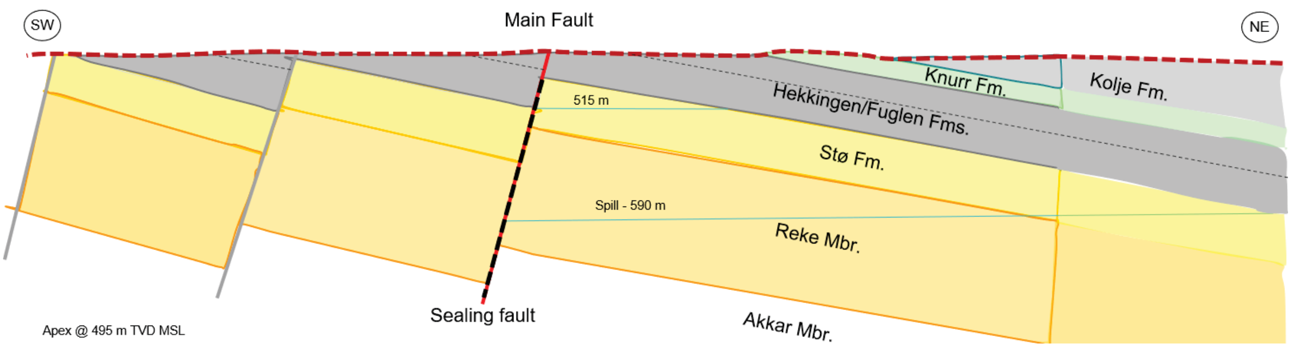


Fig. 4.6 Nightcrawler reservoir model and trap *Stø/Reke reservoir interval with spill point depths and Main fault*

Table 4.1 Nightcrawler - Petrophysical parameter input *P90 - P10 Normal distribution used for input in stochastic volume calculations*

Zone	Parameter	N/G	Total ϕ	So	Sg
Stø Fm.	Min / P90	0.5	0.11	0.5	0.7
	Max / P10	0.7	0.2	0.6	0.8

Zone	Parameter	N/G	Total	So	Sg
Reke Mbr.	Min / P90	0.30	0.15	0.5	0.6
	Max / P10	0.65	0.2	0.7	0.8

Table 4.2 Irpa - Fluid parameter input *Normal distribution used as input into stochastic volume calculations. Same parameters for all levels except Ness Fm.*

Zone	Parameter	Formation fluid factor oil (Bo)	Gas oil ratio	Formation fluid factor gas (Bg)	Wet gas shrinkage factor	Condensate yield	Recovery factor fluid	Recovery factor gas
Stø Fm.	Min / P90	1.1	38	4000	1.0	120	0.15	0.2
	Max / P10		72	6000		160	0.4	0.45
Reke Mbr.	Min / P90	1.1	38	4000	1.0	120	0.15	0.2
	Max / P10		72	6000		160	0.4	0.45

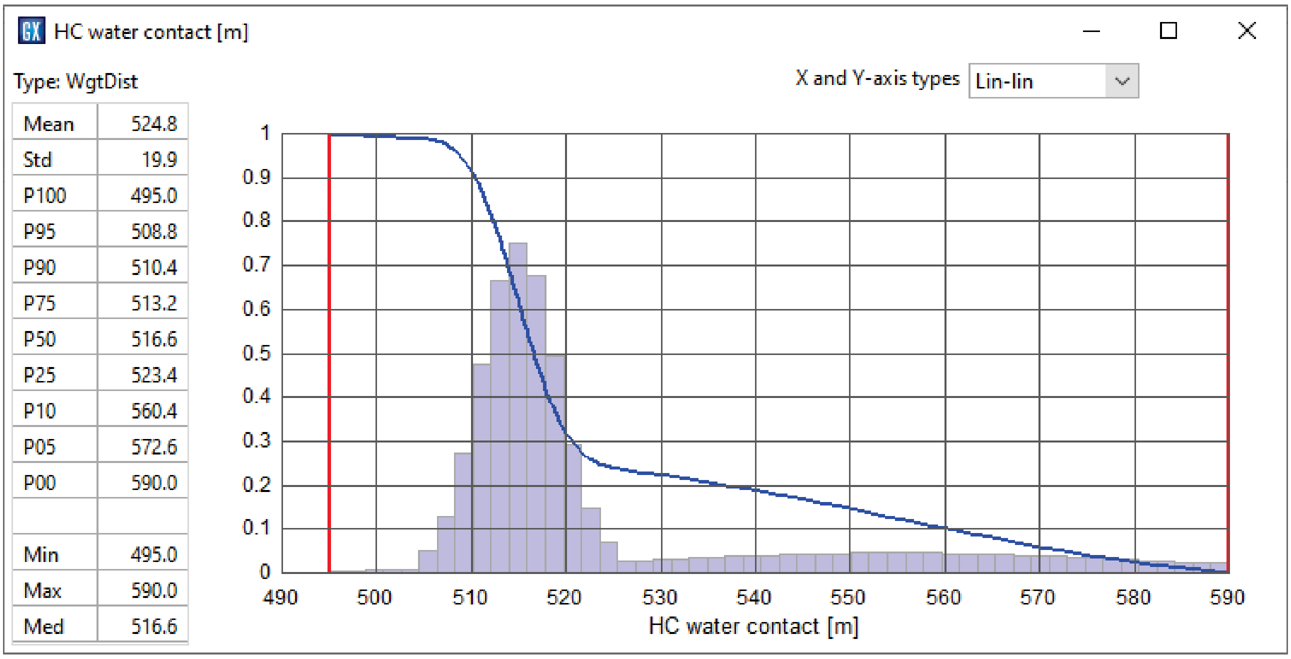


Fig. 4.7 HC-Water contact distribution *Shown for Stø Fm. - Normal 9010 distribuition weighted 70% within the 3-way dip closure and Normal 9010 distribuition weighted 30% further down-flank to the spill-point (dependent on Main Fault sealing capasity)*

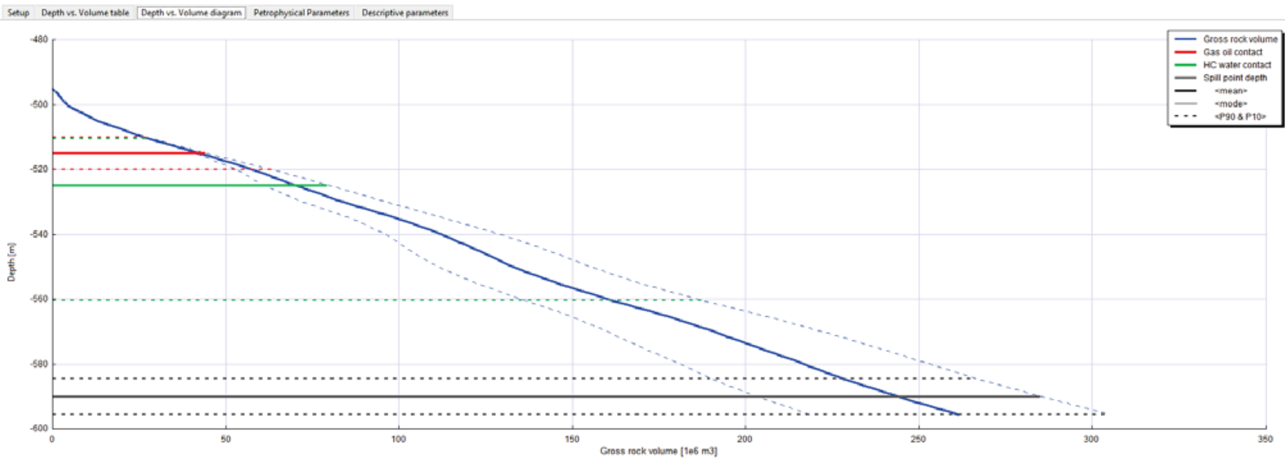


Fig. 4.8 Gross rock vs. depth *The normal distributed gross rock volume versus depth curves shown with HC contact levels and spill point. Example is for Stø Fm.*

Table 4.3 summarize the key data for the Nightcrawler prospect, only oil case is reported.

Table 4.3 Nightcrawler prospect data *NPD table 5*

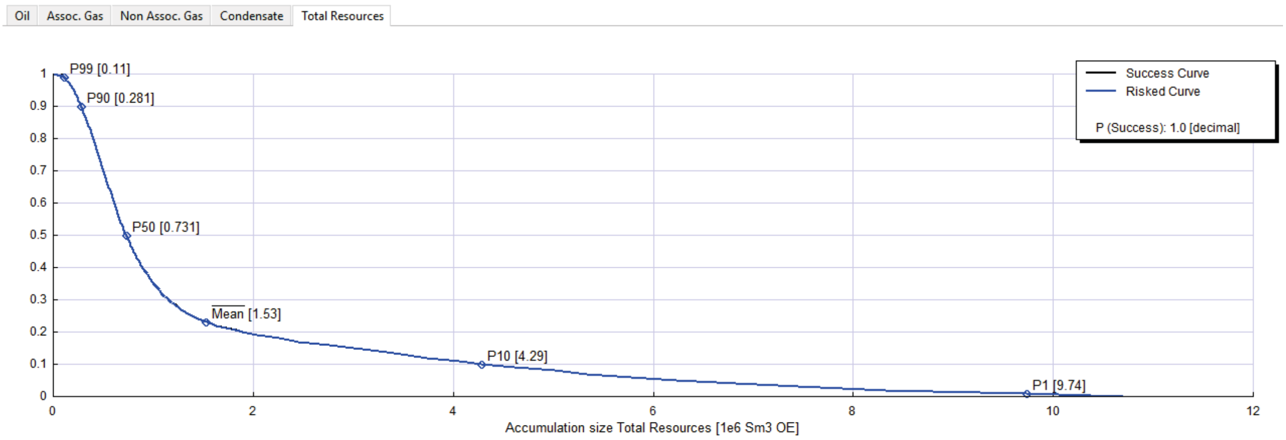
Table 5: Prospect data (Enclose map)

Block	7323/7	Prospect name	Nightcrawler	Discovery/Prosp/Lead	Prospect	Prosp ID (or New!)	NPD will insert value	NPD approved (Y/N)	
Play name	NPD will insert value	New Play (Y/N)		Outside play (Y/N)					
Oil, Gas or O&G case:	Oil	Reported by company	Spirit Energy	Reference document				Assessment year	2021
This is case no.:	1 of 1	Structural element	Bjarmeland Platforn	Type of trap	Structural	Water depth [m MSL] (>0)	440	Seismic database (2D/3D)	3D
Resources IN PLACE and RECOVERABLE		**Main phase**				**Associated phase**			
Volumes, this case		Low (P90)	Base, Mode	Base, Mean	High (P10)	Low (P90)	Base, Mode	Base, Mean	High (P10)
In place resources	Oil [10^6 Sm^3] (>0.00)	1,19	1,67	5,27	15,30				
	Gas [10^9 Sm^3] (>0.00)					0,01	0,00	0,32	0,98
Recoverable resources	Oil [10^6 Sm^3] (>0.00)	0,26	0,53	1,45	4,07				
	Gas [10^9 Sm^3] (>0.00)					0,01	0,02	0,09	0,25
Reservoir Chrono (from)	Norian	Reservoir litho (from)	Fruholmen Fm	Source Rock, chrono primary	Olenekian-Anisian	Source Rock, litho primary	Steinkobbe Fm	Seal, Chrono	Late Jurassic-Early Cret
Reservoir Chrono (to)	Bathonian	Reservoir litho (to)	Stø Fm	Source Rock, chrono secondary	Tithonian-Barresia	Source Rock, litho secondary	Hekkingen Fm	Seal, Litho	Fuglen Fm-Kolmule Fm
Probability [fraction]									
Total (oil + gas + oil & gas case) (0.00-1.00)	0,23	Oil case (0.00-1.00)		Gas case (0.00-1.00)		Oil & Gas case (0.00-1.00)			
Reservoir (P1) (0.00-1.00)	0,80	Trap (P2) (0.00-1.00)	0,80	Charge (P3) (0.00-1.00)	0,40	Retention (P4) (0.00-1.00)	0,90		
Parametres:	Low (P90)	Base	High (P10)	*Comments*					
Depth to top of prospect [m MSL] (> 0)		495							
Area of closure [km^2] (> 0.0)	3,9	6,8	18,0						
Reservoir thickness [m] (> 0)	9,5	11,8	14,2						
HC column in prospect [m] (> 0)	15	20	65						
Gross rock vol. [10^9 m^3] (> 0.000)	0,042	0,120	0,697						
Net / Gross [fraction] (0.00-1.00)	0,30	0,50	0,70						
Porosity [fraction] (0.00-1.00)	0,11	0,15	0,20						
Permeability [mD] (> 0.0)	100,0	450,0	1500,0						
Water Saturation [fraction] (0.00-1.00)	0,50	0,30	0,20						
Bg [Rm3/Sm3] (< 1.0000)	0,0003	0,0002	0,0002						
1/Bo [Sm3/Rm3] (< 1.00)		0,91							
GOR, free gas [Sm^3/Sm^3] (> 0)	120	140	160						
GOR, oil [Sm^3/Sm^3] (> 0)	38	55	72						
Recov. factor, oil main phase [fraction] (0.00-1.00)	0,15	0,28	0,40						
Recov. factor, gas ass. phase [fraction] (0.00-1.00)	0,20	0,33	0,45						
Recov. factor, gas main phase [fraction] (0.00-1.00)	0,20	0,33	0,45						
Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	0,15	0,28	0,40	For NPD use:					
Temperature, top res [°C] (>0)	12			Innrapp. av geolog-init:	NPD will insert value	Registrert - init:	NPD will insert value	Kart oppdatert	NPD will insert value
Pressure, top res [bar] (>0)	55			Dato:	NPD will insert value	Registrert Dato:	NPD will insert value	Kart dato	NPD will insert value
Cut off criteria for N/G calculation	1. > 40% VSH	2. < 10% porosity	3.					Kart nr	NPD will insert value

The main risk for the Nightcrawler prospect is related to the sealing capacity of the Main Fault bounding the prospect to the south-west when column height exceeds the 3-way dip closure. [redacted] Another main risk is late charging of the trap from mature source rock (Hekkingen Fm.) in the Maud Basin. Long distance migration, i.e. from the Fingerdjupet sub-basin, is complex and depends on intermediate HC storage in potential neighbouring traps that later spills into Nightcrawler after the base quaternary erosion event has ceased and the Quaternary cap rock deposited. Both retention and biodegradation of potentially trapped hydrocarbons can be debated, but due to the relative short time since entrapment, this is limited.

[redacted]

There are little to no risks related to reservoir presence and effectiveness as Stø and Reke is observed in all offset wells. For the 3-way dip closure, oil case is the geological chance of success 23% (Trap-0.8, Res-0.8, Charge-0.4, Retention-0.9). Three volume cases are simulated; oil only in the 3-way dip closure (as gas case an anti model/failure case), gas in 3-way closure/oil leg down to spill and oil with associated gas in a complex trap configuration down to spill. The volume range for the latter case is shown in Fig. 4.10, being the most optimistic case of the three.



Scenarios	Dist. type	Mode	Mean	Std. dev.	P99	P90	P50	P10	P1	Overall probability
Failure										0.000
Success volume	MC(5000)	0.493	1.53	2.03	0.11	0.281	0.731	4.29	9.74	1.000
Unconditional prospect	MC(5000)-r	0.493	1.53	2.03	0.11	0.281	0.731	4.29	9.74	1.000

Fig. 4.10 Nightcrawler volumes *Figure showing the volume distribution of the total resources (oil with associated gas) in Nightcrawler*

Additional prospectivity

In addition to the Middle Jurassic - Triassic Nightcrawler prospect, three other leads were identified. The leads previously identified and a new lead defined during the license evaluation are listed and described in the following.

Maud Leads

Two Maud Leads within the PL1031 area were identified in the APA2018 evaluation, Maud N1 and Maud N2 respectively, see Fig. 1.2. Re-interpreting the Kapp Toscana Gp. into the Maud Basin, both Stø, Fruholmen and the upper part of the Snadd Fm. are seen to be eroded by the intra Jurassic Unconformity event, caused by uplift of the Loppa High/Svalis Dome in the south-east, Fig. 4.11. Although a theoretical case where an erosion residue is left in the area, the reservoir intervals as observed in wells elsewhere in the area is not present leaving the leads undefined.

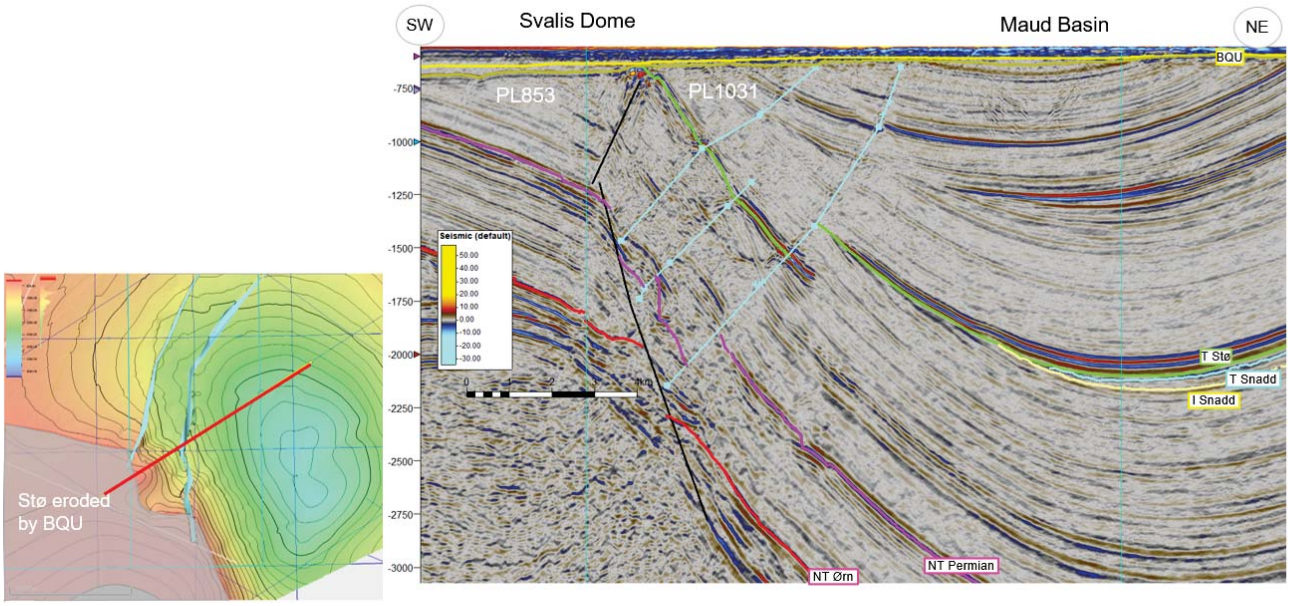


Fig. 4.11 Kapp Toscana, Maud Leads *Uplift of the Svalis Dome and subsequent erosion of the Realgrunnen Subgroup and upper part of the Snadd Fm. leaves a low chance of finding reservoir rocks present in the leads.*

Ørn Fm. Lead

The Ørn lead was identified as Cambrian-Permian lead in APA 2018. Only 2D seismic data cover the lead. No direct well tie to the lead exist and nearest wells are 7321/8-1 (poorly developed Røy Fm. merely consistent of silicified and pyritized claystones and minor weakly calcite cemented, low porosity sandstones, no HC indications) and 7226/11-1 (Ørn Fm., shallow marine carbonate environment in the Finnmark Platform, developing to large carbonate pounds more distally) 160 km to the south-east. Dipping events on the flank of the Svalis Dome, cut by the Base Quaternary Unconformity or faulted makes a possible trap configuration, see Fig. 4.12. Presence of reservoir is highly uncertain and cannot be de risked on the available 2D seismic data.

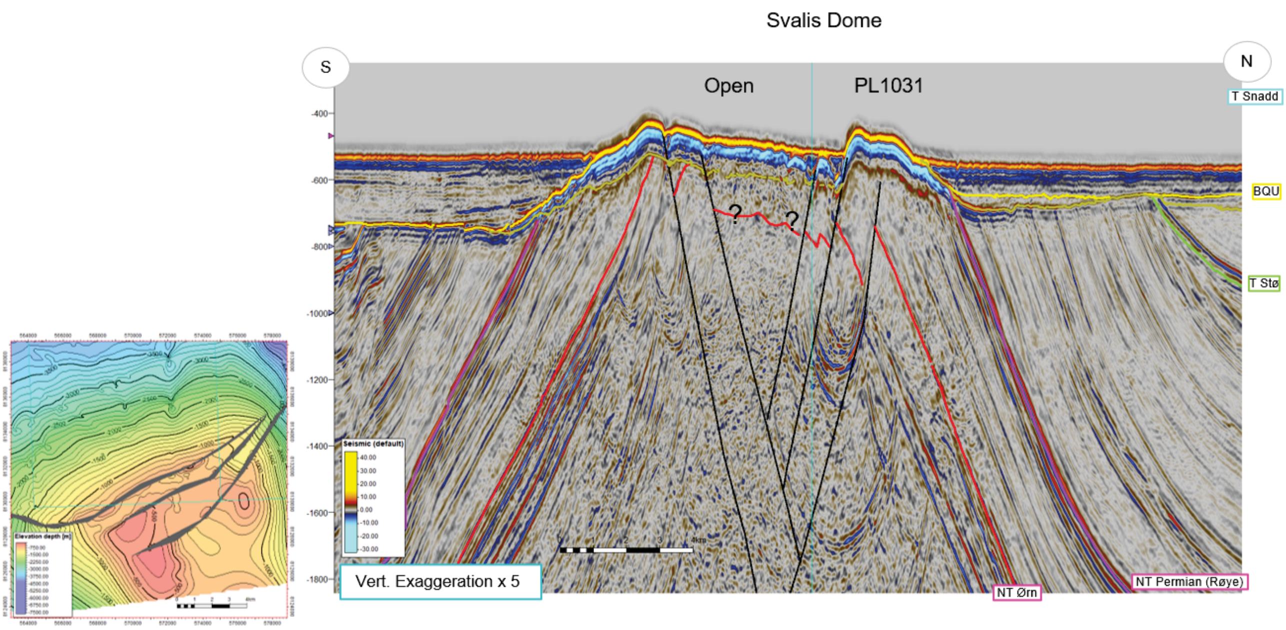


Fig. 4.12 Ørn Lead *Three way dip closure towards ME-SW trending fault down-dipping to the south.*

Snadd channel lead

Several channelized features are observed throughout the Triassic Snadd Fm. interval at several levels. The most pronounced and promising of the channels are evaluated to quantify volume and risk level of the channels observed. A limiting factor is the availability of seismic 3D data, as none of the features can be correlated and followed based on 2D seismic coverage. Only the north-western part of the license area are thus mapped, where multiple channels are found, see Fig. 4.13. By focusing on the best defined channel (at Intra Snadd level F, internal subdivision), it can be seen that it crosses a structural 'nose' dipping down in a northeastern direction and thus a two way structure is defined where a stratigraphic sealing will be present in a north-south direction, constituting a trap Fig. 4.14. Length of the channel is approximately 11.5 km where 6 km is situated within the PL1031 area, channel width varies between 200 and 900 metres and using a channel thickness variation between 50-70 meter a fixed gross volume is used as input in a stochastic volume simulation. Petrophysical input parameters are sown in Table 4.4 and fluid parameters in Table 4.5. Volume estimate of the Snadd channel is estimated to be In-place: 4.82 - 6.91 - 9.46 and Recoverable: 0.88 - 1.36 - 2.0 x 10^6 Sm^3 o.e. (P90 - P50 - P10), where approximately half is situated inside the license. The limited volume potential refrains the lead to be upgraded to prospect, not to mention the risk profile.

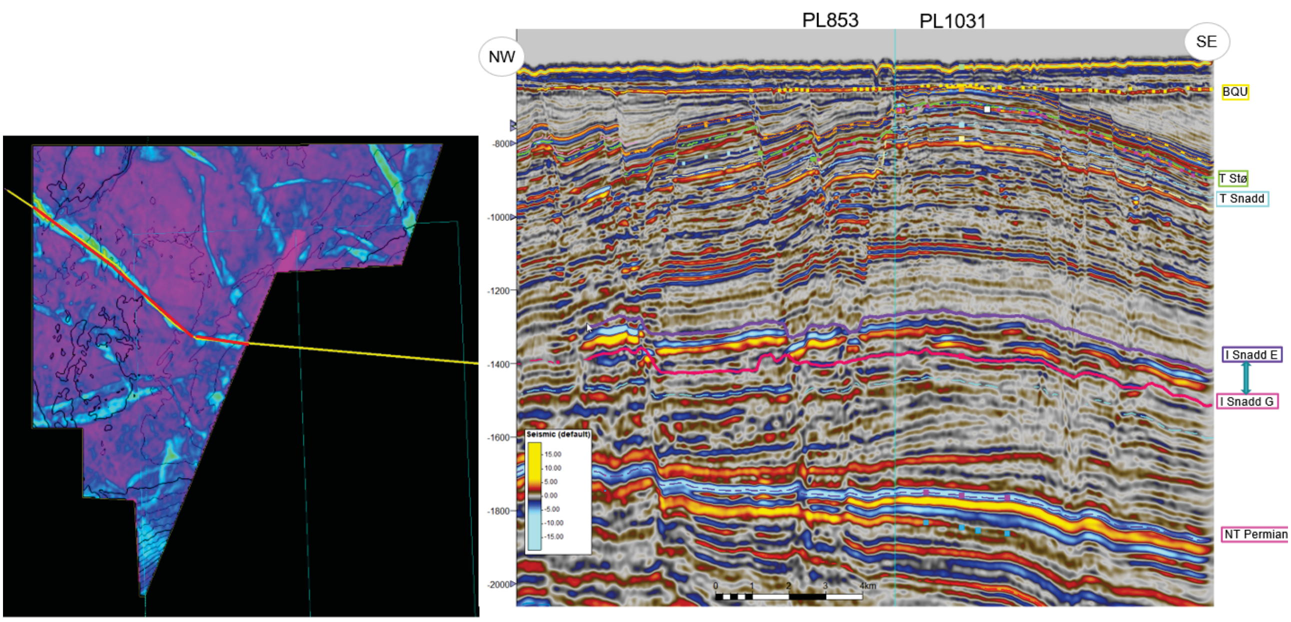


Fig. 4.13 Intra Snadd channel *High amplitude event seen in interval between I. Snadd E & G. Easily identified as a linear feature on the RMS amplitude map on the left.*

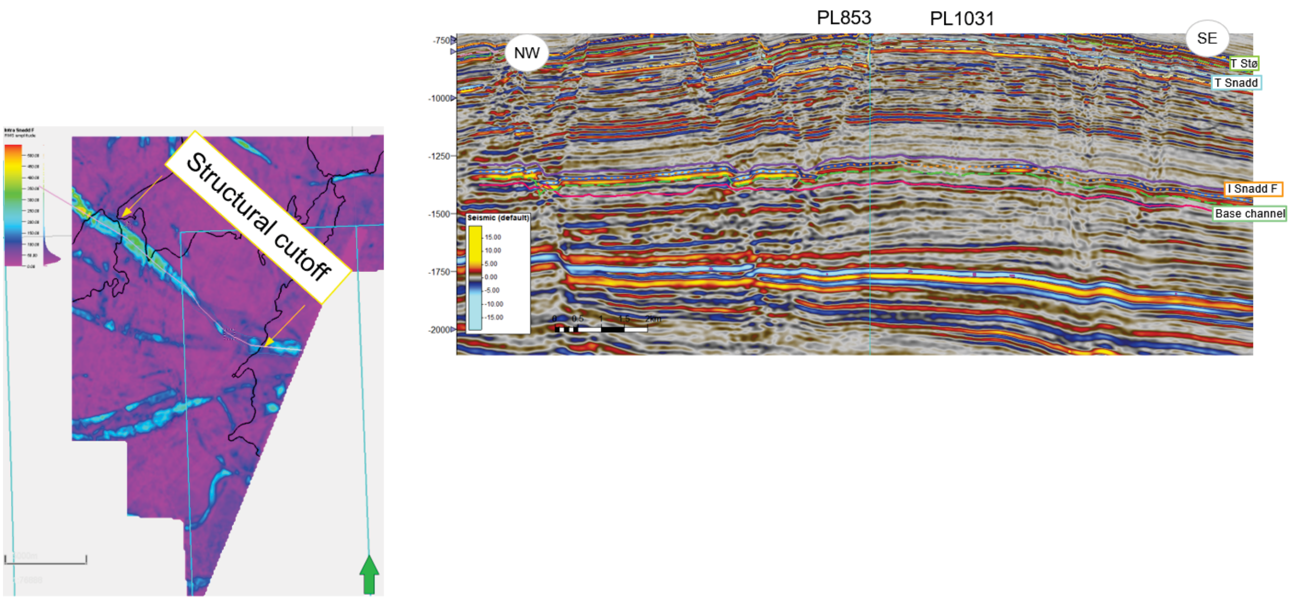


Fig. 4.14 Intra Snadd channel trap *Structural component of trap in east and west, stratigraphic off-channel seal to the north and south.*

Table 4.4 Petrophysical parameters, Snadd channel

Setup | Volume Parameters | Descriptive parameters

Parameter [Units]	Dist. type	Mean	Std. dev.	Min (Lo)	Central	Max (Hi)
Gross rock volume [1e6 m3]	Const	176.0	0.0		176.0	
Net/gross ratio [decimal]	Nrm 9010	0.4	0.0764	0.3		0.5
Porosity [decimal]	Nrm 9010	0.175	0.0191	0.15		0.2
Trap fill [decimal]	Triang	0.9	0.0408	0.8	0.9	1.0
Oil saturation [decimal]	Nrm 9010	0.7	0.0764	0.6		0.8

Table 4.5 Fluid parameters, Snadd channel

Setup | Input parameters | Descriptive parameters

Parameter [Units]	Dist. type	Mean	Std. dev.	Min (Lo)	Central	Max (Hi)
Formation volume factor oil (Bo) [m3/Sm3]	Const	1.2	0.0		1.2	
Gas oil ratio [Sm3/Sm3]	Nrm 9010	100.0	15.3	80.0		120.0
Recovery factor Oil [decimal]	Nrm 9010	0.2	0.0382	0.15		0.25
Recovery factor Assoc. Gas [decimal]	Nrm 9010	0.2	0.0382	0.15		0.25

5 TECHNICAL EVALUATIONS

Due to the limited volume potential and high risk associated with the Nightcrawler prospect, the criteria for meeting a minimum economic field size is not fulfilled, and as such, a technical evaluation has not been done.

6 CONCLUSIONS

Phase 1 of the work program leading up to the Drill-or-Drop decision has been fulfilled by acquiring the CSEM dataset BS1901 and evaluating the prospectivity in license 1031. The cap rock study by Schlumberger substantiate the overburden to hold up to a 165 m gas or 360 m oil column in the Nightcrawler trap. The fault juxtaposition observed makes it probable that the trap is leaking where Stø Fm. and Reke Mbr. are juxtaposed and only a smaller 3-way closure at the apex of the structure can seal hydrocarbons. [redacted]. The resulting volumes and risk profile makes the prospect uneconomic and not ready to drill.

The additional prospectivity in the license has very high risk associated with them and are shown not to be able to upgrade to prospect status. Although several discoveries are made in the area, the limited volume range makes Nightcrawler way below what is required to meet the economic criteria to make a positive drill decision. The remaining prospectivity in the license is not economically viable to pursue any further based on the volume calculations and the minimum economic field size calculated for the area.